LEARNING THE ROPES: ASPECTS ON MALE VS. FEMALE SEX IN HYPERTENSION

Epidemiology and risk: Asian perspective

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DOI: 10.30824/2110-6

Hypertension is one of the important medical conditions that is attributed to premature death due to cardiovascular disease (CVD) globally. Generally, premenopausal women have a lower risk of hypertension and cardiovascular disease compared with age-matched men but this advantage for women gradually disappears after they attained menopause. At ages of 65 years and above, a higher percentage of women have hypertension and CVD compared with men, and the gap will likely increase with the continued aging of the female population^[1,2].

The risk of cardiovascular disease in women is often overlooked due to the misunderstanding that women are more 'protected' than men against CVD[2]. The inattention of CVD in women may lead to less aggressive clinical management. Among female who die, one third of them actually succumb to coronary heart disease (CHD). Studies have reported that female patients with CHD have a poorer control of cardiovascular risk factor profiles as compared to male^[2].

There are gender differences in terms of risk factors for cardiovascular disease development. Men is greatly affected by conventional risk factors like age, hypertension, total cholesterol and low-density lipoprotein (LDL)-cholesterol.^[2] On the other hand, women are affected by other risk factors like smoking, diabetes, triglyceride and high-density lipoprotein

(HDL)-cholesterol levels^[2]. On top of that women with underlying pregnancy induced hypertension, preeclampsia, gestational diabetes mellitus and polycystic ovary syndrome are at higher risk of developing cardiovascular disease^[2].

In Asia, the prevalence of hypertension and CVD in men is higher compared with females. In China, the overall prevalence of hypertension was 23.2% with 24.5% in men versus 21.9% in females^[3].

Besides sex difference on biological and behavioural risk factors for CVD, gender-related differences also occur in social, education, environmental and support system that attribute to the development of hypertension particularly in Asia. Studies reported women in lower socioeconomic and education groups had a higher prevalence of hypertension compared with men^[4]. This could be due to the fact that women with lower socioeconomic and education groups were most likely divorced, had poor social support, poor dietary habits, stress, depression and no access to health services. Even though some of them also work as labourers, the demand for physical activity is low and this tend to lead to a sedentary lifestyle^[4]. All these contributed to a higher prevalence of hypertension in women with a poor socioeconomic background.

Contrasting findings are found in men whereby having a medium income and low education level were the protective factors for men against development of hypertension [4, 5]. This could be due to the fact that men with a low education level usually worked as a labourer and were performing higher levels of physical activity and therefore, were less likely to have hypertension. Another important finding reported in the literature includes those men suffering from depression were at risk of having hypertension and this could be explained by the fact that depression could lead to the overstimulation of the sympathetic nervous system [4].

Thus, a gender-specific approach for hypertension prevention programmes must be carried out in an Asian context to cater for the differences in gender, particularly providing social support to those vulnerable groups particularly to women in order to have a more effective health promotion outcomes. During daily clinical practice, clinicians should be aware of gender differences in hypertension risk factors in conjunction with the annual blood pressure screening programme and provide gender-based health advice to the public. Similarly, health education at the community level should be gender specific and avoid one-size-fits-all content, since the risk factors are different for men and women as evidenced by the above discussion.

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Table 1. Prevalence of hypertension according to gender distribution

Author	year	Country	Design	Number of participants			Prevalence of hypertension, %		
				Overall	Male	Female	Overall	Male	Female
Defianna SR	2021	Indonesia	Cross-sectional	4328	1666	2662	40.0	42.0	38.0
Peltzer K	2018	Indonesia	Cross-sectional	29965	13997	15969	33.4	31.0	35.4
Saswata G	2015	India	Cross-sectional	27 589	13 994	13 595	-	12.5	11.3
Sivasubramaniam R	2019	India	Cross-sectional	180335	120425	59910	30.7	34.2	23.7
Wang ZW	2018	China	Cross-sectional	451755	216034	235721	23.2	24.5	21.9
Hayon MC	2017	Korea	Cross-sectional	27887	12089	15798	-	34.6	30.8
Man JS	2020	Malaysia	Cross-sectional	241796	24276	29185	29.7	31.4	27.8

Figure 1: Meta-analysis for Prevalence of hypertension by gender

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